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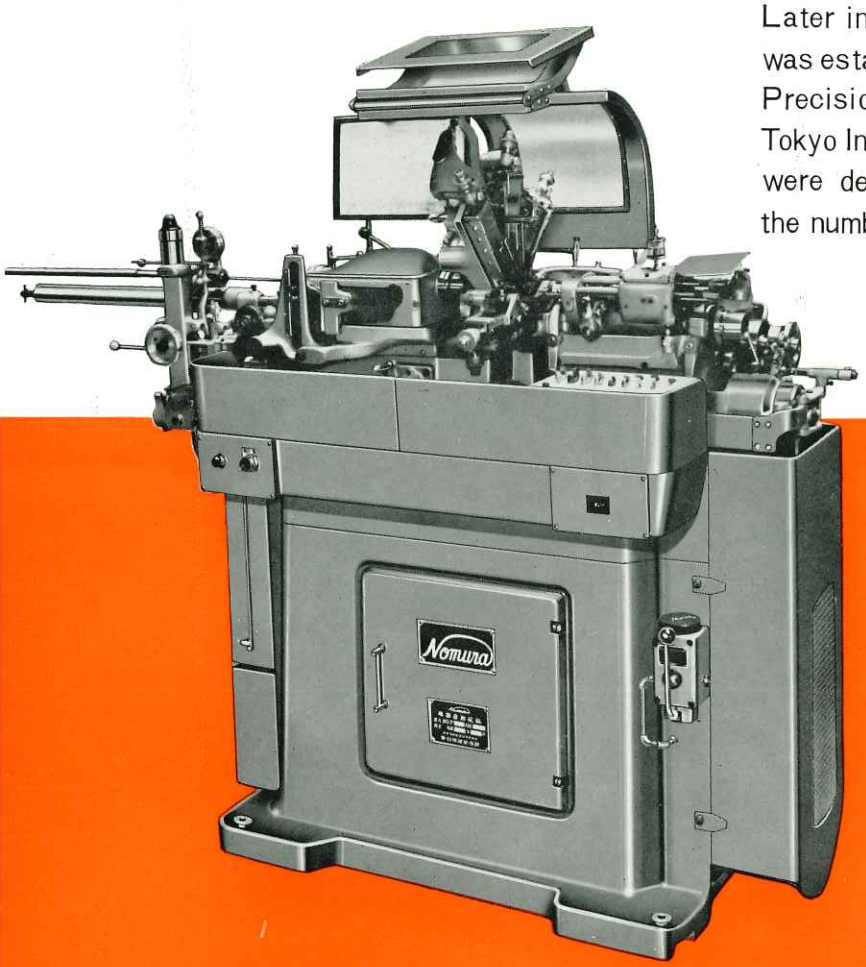
Nomura

NOMURA

AUTOMATIC LATHE Co., Ltd.

NOMURA PRECISION AUTOMATIC SCREW MACHINE

Mr. Takayuki Nomura is an executive representative of this company who started to make research study on the Automatic Screw Machine in 1935 and obtained its patent in 1941. During this period until 1945, he served as a factory manager in the military-designated time fuse manufacturing company. After 1945, he became independent and established Asahi Mfg., Works Ltd., Nissin Watch Industry Co., Ltd., and Nomura Parts Mfg., Works Ltd., (these three companies still exist.) These companies produced various precision parts, mainly for watches, with the automatic lathe designed by Mr. T. Nomura.
Later in 1959, **Nomura Automatic Lathe Co., Ltd.** was established and in the same called "Swiss Type" Precision Automatic Screw Machine at the 3rd Tokyo International Trade Fair. Upto 1964, machines were delivered to over six hundred companies and the number of machines sold is more than 5,000 sets.



TYPE NS-P1653 & TYPE NS-P1453

NOMURA'S PRECISION AUTOMATIC SCREW MACHINE

3 Tail Spindle Attachment is same as Type NS-P1153

Special devices included

1. Camshaft rapid progress device
2. Safety device for tap breaking
3. Pressed oil lubricating device
4. Safety device for over load
5. 3 Tail spindle attachment
6. When the main shaft belt is broken away, the machine stops automatically

- Equipped with center tap
- Spring strength adjustment.

OPERATION OUTLINE

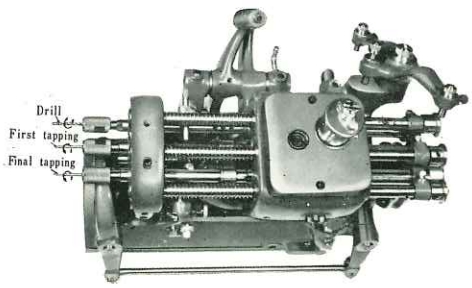
Nomura Precision Automatic Screw Machine is equipped with a guide bushing and in processing, the headstock spindle will move. It is so called "Swiss Type" High Speed Precision Automatic Screw Machine because it is most suited to making a wide range of parts requiring irregular cutting and making long parts with small diameter. It is designed very rigidly for simple operation to obtain high preciseness and effectiveness. It is a unique machine for various industries as watch, optical, sewing machines, electric communication equipment, medical instruments, and measure manufacturing factories which require small parts made from such materials as steel, soft steel, brass, phosphor bronze, nickel silver, stainless steel, light metal and synthetic resin rods.

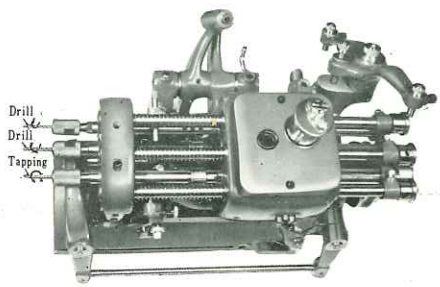
SPECIAL FEATURES

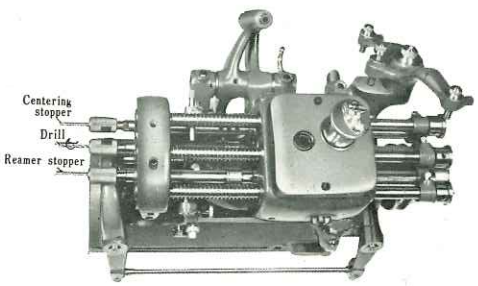
1. Nomura Precision Automatic Screw Machine's collet chuck holds work piece steadily and at the other end in center of headstock spindle there is guide bushing which receives work piece firmly in the center line. Cutting is done from the end of guide bushing so it does not allow any misalignment or deformation. Therefore, its specified size parts are always obtained with high accuracy. Especially, high merit is given for making long parts with small diameter.
2. For the purpose of high recision works, all tool holders are adjustable with the differential micrometer scale within an accuracy of 0.0025 mm (0.0001″). It requires very little time to make a setting adjustment.
3. Headstock can be operated at high speed so that high speed cutting is made possible by using extra hard bits.
4. With only one operation of the machine, it is possible to cut various complex parts by applying such special attachments as centering, drilling, tapping and dicing.
5. The machine is designed and built with a due consideration on the big quantity of tip made by the high speed cutting.
6. When material (work piece) on the machine runs out, the machine will stop with the help of the gearing structure, the camshaft stops as a clutch automatically slips off and a red signal lights.
7. One person can operate more than five machines at a time as it is very easy to handle and also working expenses can be greatly saved. Parts are produced with high preciseness so a revolutionary improvement of quality can be accomplished.
8. Very carefull attention was paid for machine designing, quality of material, heat treatment to maintain high preciseness for long periods, especially for various sliding parts a special metal is used which contains the steel for the piston ring.
9. Parts are all tempered and ground and nickel chrome steel is used for various wearing parts to increase the durability of machine.

● 3 TAIL SPINDLE ATTACHMENT MAY BE USED AS FOLLOWS.

(for Types NS−P1153, P1453, P1653)



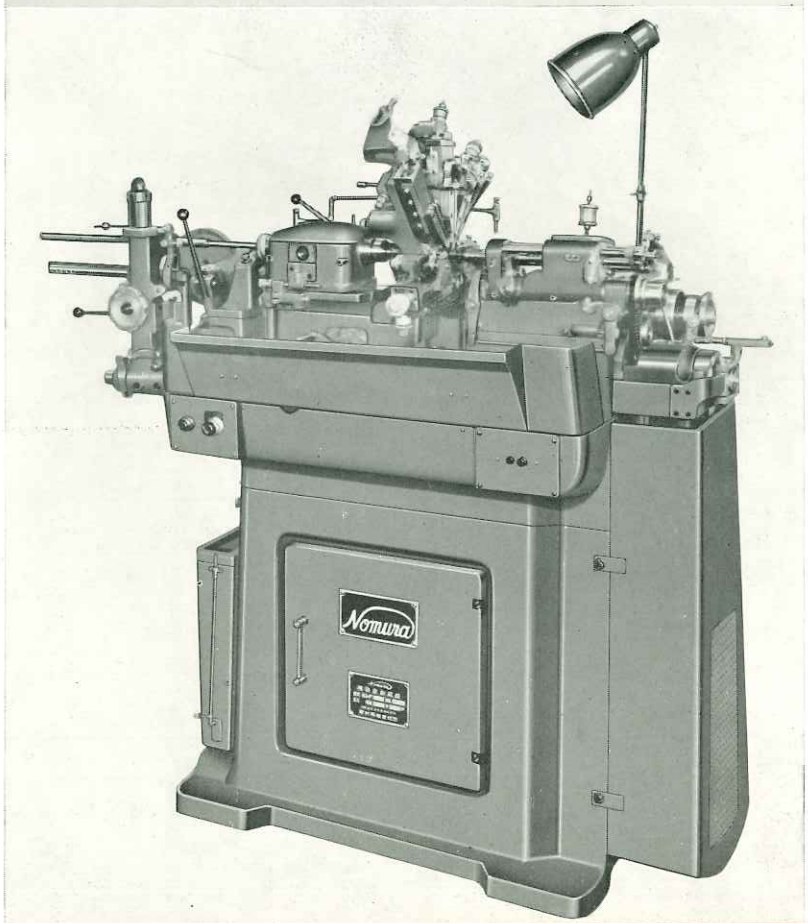




TYPE NS-P1153

NOMURA'S PRECISION AUTOMATIC SCREW MACHINE

- Spring strength adjustment.
- Safety device for overload.
- 3 tail spindle attachment.
- Camshaft progress rapid device.
- Safety device for tap breaking.



SPINDLE HEADSTOCK

It slides along on the long rigid bed consisting of three guiding bases and the chucking operation is automatically done as the bar is sent forward to the headstock spindle. Then the spindle headstock chucks the bar automatically at the top of spindle and proceeds the work advancing forward. When one work ends, the headstock returns back to original position while the collet chuck opens. Then, the headstock again chucks the bar and repeats the process. Headstock spindle is made from special steel with lapping finish applied after precise grinding. Needle roller bearing is used for spindle in front and back, it is mounted on specially made angular contact bearings which are assembled precisely without, any allowance for play to give continuous long period of high preciseness and no trouble will occur from long hour operation in high speed rotation.

CROSS TOOL SET (TYPE NS-P1453 / TYPE NS-P1153)

Nomura Precision Automatic Screw Machine has five tool sets arranged radially to the guide bush, namely tools No.1 and No.2 are mounted on the rocker arm which makes rocking motion. Other three tools are arranged to face to guide bush and slide up and downward. Adjustment of No.1 & No.2 cross tool is done by a simple adjustment of gauge (0.0025mm) with the differential micrometer and for Nos.3,4 and 5 are with the gauge of 0.005mm. Ratio of Rocking Tool Cam Lever is 3:1 and for vertical tool is 2:1—3:1. Each cross tool set is so rigid that the overall use of tungsten carbide bit is possible.

GUIDE BUSH

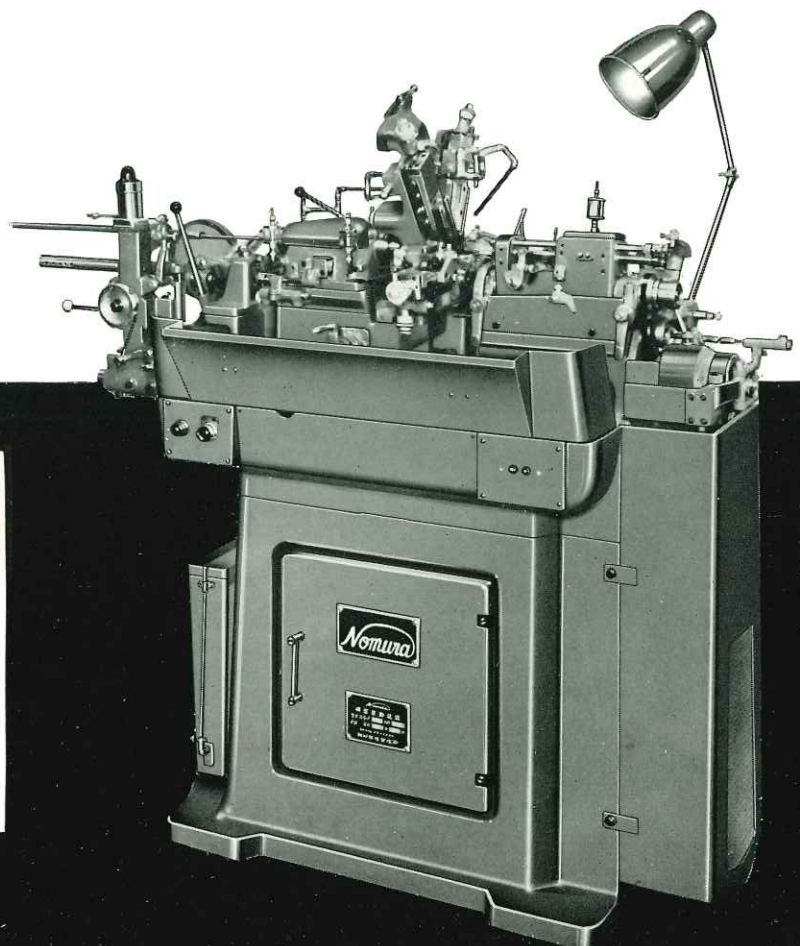
Three different kinds of guide bushes can be used on this precision automatic screw machine. Especially for the Swiss Type Automatic Screw Machine, these guide bushes are most important. Fixed, adjustable and rotation types are used. The fixed type is used for processing comparatively rough works. The adjustable type is for high precision processing. And the rotation type is used for the processing of varied diameters. Extra hard alloy is used for guide bush as material and the inner part is finished with lapping accordingly. The wear of all pasts are minimized and the high preciseness of work is easily obtainable. At the same time, it can be durable for long time.

CAM AND CAMSHAFT

A camshaft is parallelly placed at rear of the machine which controls every mechanism of the operations through the worm gear directly connected to the camshaft. Various cams are mounted on this camshaft, from right to left the spindle headstock feeding cam (head cam), open and close cam of collet chuck, cams for each tools, slotting and threading cams and drilling cam. To simplify the changing of work process, the plate cam is mounted on the camshaft by inserting and the bell cam is designed to be mounted and dismounted in a very little time. The drive of camshaft is changeable in 60 steps by V-belt replacing.

MATERIAL SUPPLY

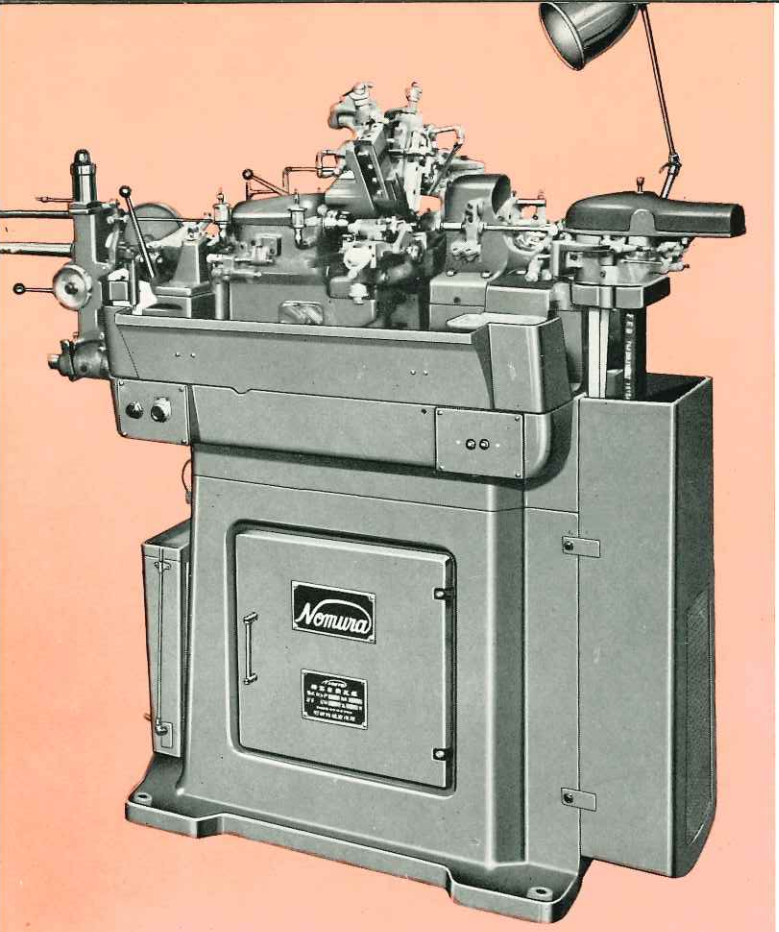
This equipment is capable to handle three meter 10 feet length material. Material is pushed into the bar feed tube and it is led to the headstock spindle by pushing with the heavy weight from the rear side. Then, collet chuck opens to receive material supplied and the bits act as the stop per. Moreover if material is exhausted, the stopper at fixed position will throw clutch off automatically and also stop camshaft at fixed position. And, red light lamp indicates material is finished.



TYPE NS-P8420

NOMURA'S PRECISION AUTOMATIC SCREW MACHINE

- In addition to 2 tail spindle attachment, it is furnished with a center tap.
- Spring strength adjustment.
- Safety device for overload.



TYPE NS-P8410

NOMURA'S PRECISION AUTOMATIC SCREW MACHINE

- Equipped with slitting unit.
- 1 Tail spindle attachiment.
- Spring strength adjustment.
- Safety device for overload.

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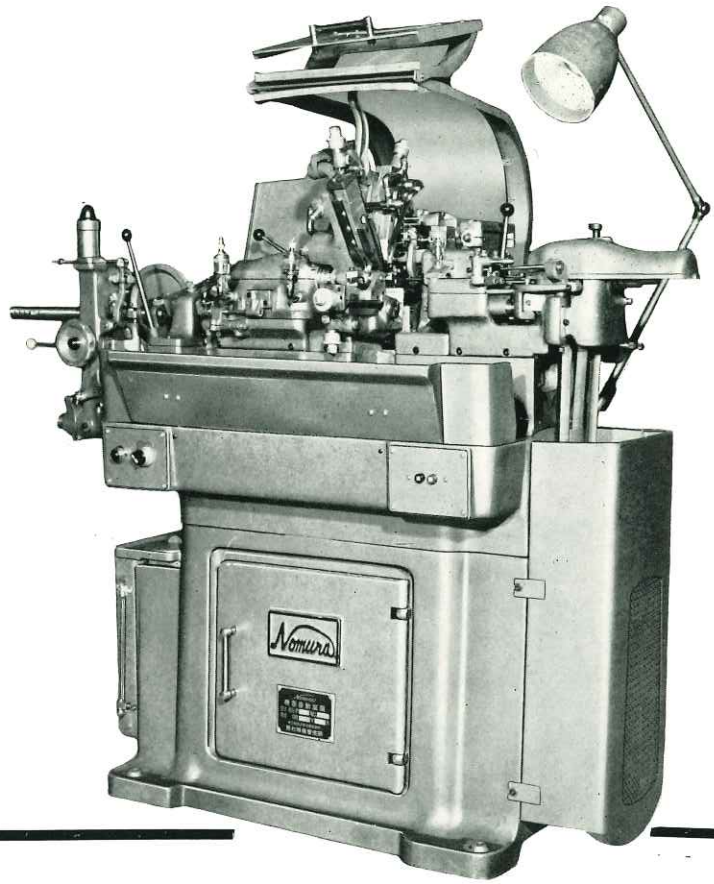


SLITTING UNIT (TYPES NS−P8410, NS−PN8410)

In this unit, the material already cut is taken up and carried upward by the carrier, and its head in slitted independently of work of the main unit. Then the material comes out of the carrier and a finished product alone is collected to one place through a guide line.

PERFORATOR & SCREW CUTTING DEVICE (TYPES NS−P8410, NS−PN8410)

The screw cutting dies located in front of the guide bush makes the cutting shaft rotate in the same direction as the spindle does, thereby to perform screw cutting.
Uniform, precision screws can be produced through fine abjustment. Perforation may be realized simply by replacement of the holder.

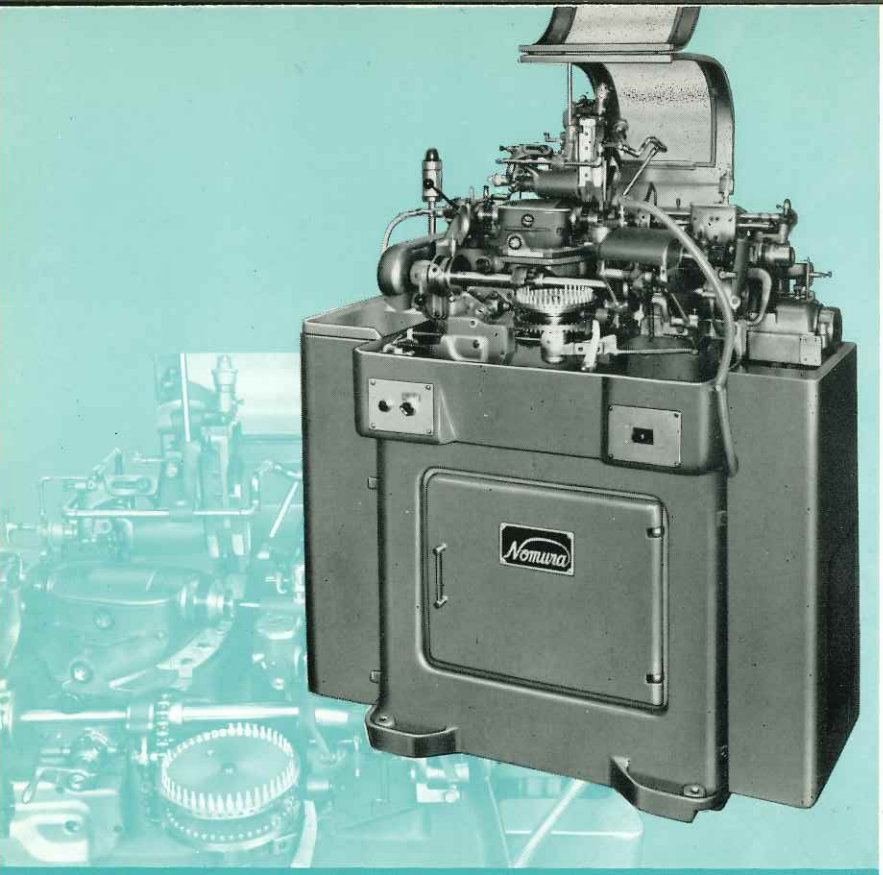
TYPE NS-PN8410

NOMURA'S PRECISION AUTOMATIC SCREW MACHINE

- Special Features

In this machine, slitting unit moves up and down when the slot cutting is done, so the slot cutting surface is sharply formed and no burrs are generated.

- 1 Tail Spindle Attachment
- Spring strength adjustment.
- Safety device for overload.



TYPE NS-PS 1022

PNEUMATIC SECONDARY CHUCKING MACHINE

GENERAL

This is a kind of the full automatic lathe which accomplishes the high accurate secondary machining for the work done by the automatic lathe, pressed work, etc. This machine is ideally suited to secondary machining, with high accuracy and high efficiency, such as centering, drilling, tapping, reaming, threading, chamfering and transverse turning. It is entirely a new mechanism which has completely changed the conventional secondary machine tool and an adequate has been taken to simplify the operating controlls.
Thus, the NOMURA Type NS-PS1022 is the most appropriate automatic lathe for high precision secondary processing of various types of steel, other metals, as well as plastics used in various industries.

FEATURES

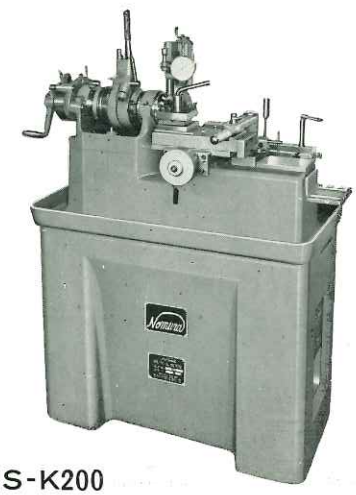
1. Manual operation is required only for inserting the work pieces into the magazine and the continuous operation is accomplished easily by replacing the magazine. (Number of work pieces per magazine is 40, 45 or 60.)
2. A pneumatic pump is used to load and unload the work pieces on the spindle, i.e., the work piece is drawn into the carrier by air and brought to the main spindle. When the headstock is aligned with the work piece by swinging and sliding motion of carrier, the work piece is ejected from carrier and loaded on the spindle pneumatically at the same time and the headstock returns to its original position to start the processing. Upon completion of the processing, the headstock commences to move and the processed work is ejected at the half-way point by the pneumatic piston. The headstock continues to move to the position where the next work piece is drawn in for processing.
3. Since the loading and unloading is done by air, the work pieces are not scarred.
4. As tips cut around the collet chuck are swept away by the swinging motion of the headstock and the ejection of the processed work is done by the pneumatic piston it is unnecessary to mind about the tip.
5. When all work pieces in the magazine are processed, the constant position stop device stops the machine automatically.
6. Tool setting is quick, accurate and easy using a micrometer mounted the tool rest which enables as high precision work as 0.0006″ scale minimum.
7. Cam designing and manufacturing cost is nearly nil for ordinary machining, since they are easily made out by the standard cams.
8. High-speed cutting with the tungsten carbide tool is possible, since the main spindle rotates at high speed.
9. The machine operation is so easily that at operator can handle five sets at a time which contributes greatly to reduce costs. Work pieces requiring many processes can be workd with high accuracy by the machine and the product quality is much improved.
10. A great care has been taken for this machine in designing, material, heat treatment, processing and assebling, enabling it to maintain the required accuracy for a long time. For example, Meehanite is used for various friction parts and quenching is applied to all components.
11. When the secondary processing is not required, the headstock is fixed and the work feeder is installed so that the equipment may be used as a single spindle automatic screw machine for primary processing of bar material.

SPECIFICATIONS :

Bar work capacity	Diameter	0.04″ to 0.4″
Chuck work of plate cap	Length	0.04″ to 1.2″
	Width	0.04″ to 1.2″
	Thickness	0.04″ to 0.32″
Accuracy on diameter	±0.0004″	
Accuracy on length	±0.0004″	
Maximum Dia. of Thread cutting	0.2″ for brass, 0.16″ for steel.	
Number of tools	Two (three optionally) Travers cutting length with one tool is 2.5 times of the diameter (max.)	
Main spindle speed range	1500 rpm to 5300 rpm, 5 steps.	
Camshaft speed	0.27 rpm to 18.59 rpm, 24 steps by gear.	
Power required	Main spindle-1.5 HP, 4P Camshaft speed acceleration-0.3 HP, 6P	
Height from floor to center of main spindle	46″	
Floor space	50″ × 30″	
Weight	1800 Lbs.	

Remark: Collet-Chuck used-Barrel diameter 3/5″
Taper 40°
Through hole 2/5″
(Patent pending)

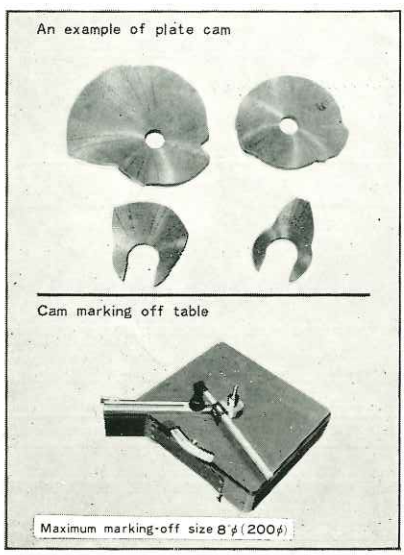
Standard accessories
Pneumatic loading and unloading equipment from magazine to spindle
2 spindle attachment
Centering attachment
Safety device for irregular loading
Safety device for camshaft overload
Safety device for tap breakage



NS-K200

TYPE NS-K 200
CAM SHAFT TURNING LATHE

Generally, an automatic lathe is designed to cut a single product through one 360-degree rotation of its cam. Particularly, in the Swiss-made automatic lathe, the lathe itself can provide very high performances but the cam seems not so much improved. This sometimes brings about unsatisfactory products; for example, the hand-finished cam by using a file results in ununiform cutting edges or uneven cutting surfaces of a product by taper cutting.
The Cam Shaft Turning Lathe is capable of performing cutting actions that cannot be realized with the lathe using a hand-finished cam, with an efficiency of 10 times or more that of the other lathe. The cam shaft turning lathe comes in two systems if classified structurally. One is of a simplified structure but its cutting system is reliable. That is, after cutting the zero line correctly, the part between zero lines of each stage is cut with the zero lines being linked in a shape of circular curve like an upward lead. In this system, however, there is such a disadvantage that no homogeneous finish can be obtained due to the approximate curve and therefore ununiform cutting surfaces result. Also, taper cutting is impossible in this system because it requires correct composite motions for that purpose.
The other system not only is free from the above disadvantage but also is capable of finishing cuttings and cutting zero lines simultaneously, thus assuring clear finish of the intersecting point, good efficiency and high accuracy. Type NS-K200 Cam Shaft Turning Lathe, adopting the latter system, is recommendable with confidence for fully satisfactory operation results.

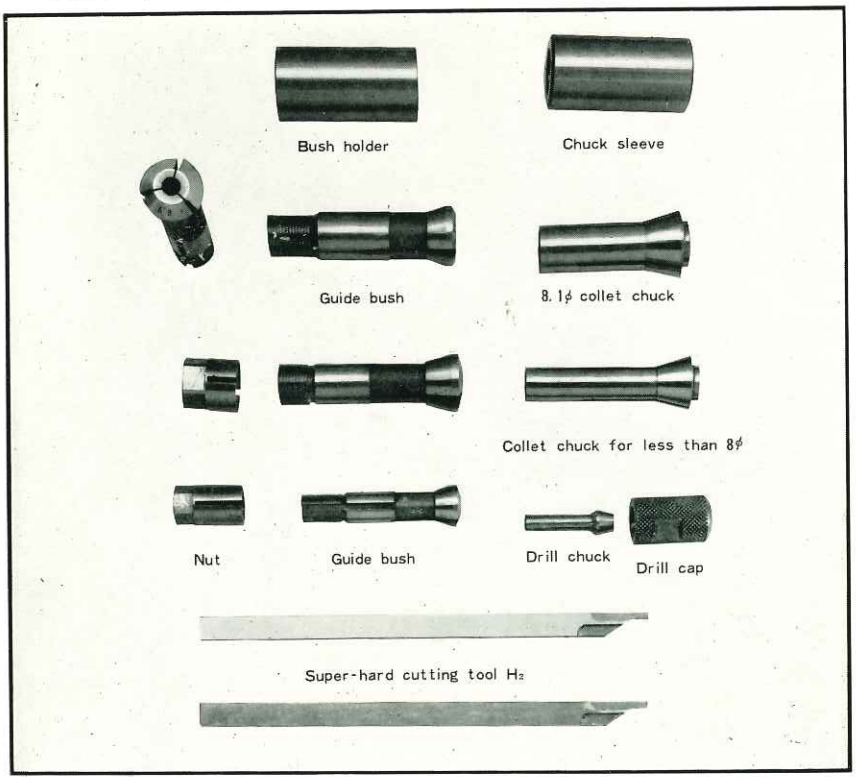


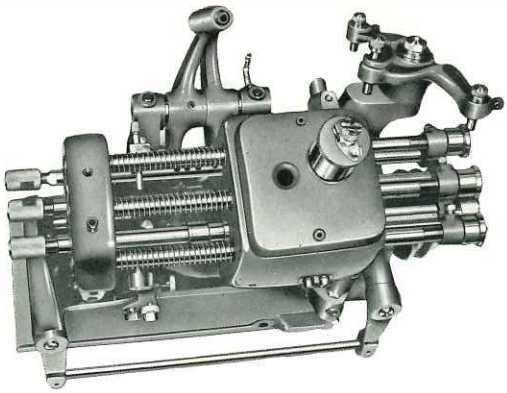
NOMURA PRECISION AUTOMATIC SCREW MACHINE

SPECIFICATIONS

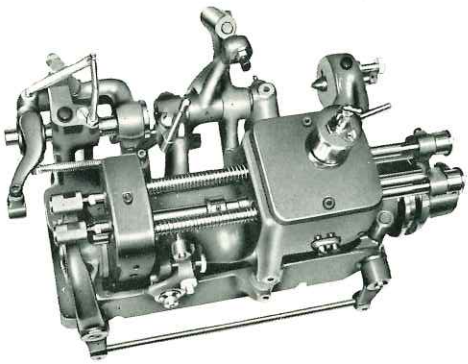
Function \ Model	NS-P1653	NS-P1453	NS-P1153	NS-P8420	NS-P8410	NS-PN8410	CAM LATHE NS-K200
1. Number of cross tools	5	5	5	4	4	4	
2. Maximum processing diameter	0.63" (16mm)	0.55" (14mm)	0.43" (11mm)	0.31" (8mm)	0.31" (8mm)	0.31" (8mm)	
3. Maximum processing length	3.94" (100mm)	3.94" (100mm)	2.56" (65mm)	2.56" (65mm)	2.56" (65mm)	(65mm)	
4. Processing accuracy in diameter	±0.0001" (±0.003)	±0.0001" (±0.003)	±0.0001" (±0.003)	±0.0001" (±0.003)	±0.0001" (±0.003)	±0.0001" (±0.003)	
5. Processing accuracy in length	±0.0002" (±0.005)	±0.0002" (±0.005)	±0.0002" (±0.005)	±0.0002" (±0.005)	±0.0002" (±0.005)	±0.0002" (±0.005)	
6. Maximum thread cutting — for brass	0.31" (8mm)	0.31" (8mm)	0.23" (6mm)	0.23" (6mm)	0.19" (5mm)	0.01"~0.19" (0.3~5mm)	
6. Maximum thread cutting — for iron	0.27" (7mm)	0.27" (7mm)	0.19" (5mm)	0.19" (5mm)	0.15" (4mm)	0.01"~0.15" (0.3~4mm)	
7. Range of headstock spindle speed	R.P.M. 1500~7500 (14steps)	R.P.M. 1500~7500 (14steps)	R.P.M. 1500~5300 (5steps)	R.P.M. 1900~5500 (5 steps)	R.P.M. 1900~5500 (5 steps)	R.P.M. 1900~5500 (5 steps)	
8. Range of camshaft speed	R.P.M 0.23~54 (40gear steps)	R.P.M. 0.23~54 (40gear steps)	R.P.M. 0.6~30 (24gear steps)	R.P.M. 0.6~30 (81 steps belt change)	R.P.M. 0.6~30 (81 steps belt change)	R.P.M. 0.6~30 (81 steps belt change)	
9. Power of motor	2 HP (1.5kw)	2 HP (1.5kW)	1.3 HP (1kW)	1 HP (0.75kW)	1 HP (0.75kW)	1 HP (0.75kW)	
10. Height (from floor to headstock spindle center)	3'~9" (1150mm)	3'~9" (1150mm)	3'~9" (1150mm)	3'~9" (1150mm)	3'~9" (1150mm)	3'~9" (950mm)	4'~7" (1400mm)
11. Floor space	4'~11"×2'~9" (1250×850mm)	4'~1"×2'~9" (1250×850mm)	3'~0"×1'~8" (900×500mm)	3'~0"×1'~8" (900×500mm)	3'~0"×1'~4" (900×500mm)	3'~0"×1'~8" (900×500mm)	4'~7"×2'~8" (1250×800mm)
12. Net weight	2860 lbs (1300kg)	2860 lbs (1300kg)	1540 lbs (700kg)	1540 lbs (700kg)	1320 lbs (600kg)	1320 lbs (600kg)	1100 lbs (500kg)
13. Maximum cam material diameter to be processed							8"φ (200mmφ)
Features of each type	• Camshaft rapid Progress Devise • Safety Device for Tap Breaking • Pressed Oil Lubricating Device • Safety Device for Excess Load • 3 Tail Spindle Attachment • Equipped with Center Tap	• Comshaft rapid Progress Device • Safety Device for Tap Breaking • Pressed Oil Lubricating Device • Sefety Device for Excess Load • 3 Tail Spindle Attachment • Equipped with Center Tap	• 3 Tail Spindle Attachment • Camshaft rapid Progress Device • Safety Device for Tap Breaking	• 2 Tail Spindle Attachment • Equiped with Center Tap	• Equipped with Slitting Unit • 1 Tail Spindle Attachment	• Special Features In this machine, slitting unit moves up and down when the slot cutting is done, so the slot cutting surface is sharply formed and no burrs are generated • 1 Tail Spindle Attachment	
All types are equipped with the oil cover							
Standard accessories	1. Bar feed tube ····· 1 2. Tube holder stand ··· 1 3. Collet ····· 1 4. Guide bush ····· 1 5. Cam set ····· 1			6. Spanner ····· 1 set 7. Belt ····· 1 set 8. Bit ····· 1 set 9. Tool box ····· 1			

Bushes and collet chucks attached to automatic high-speed precision screw machine

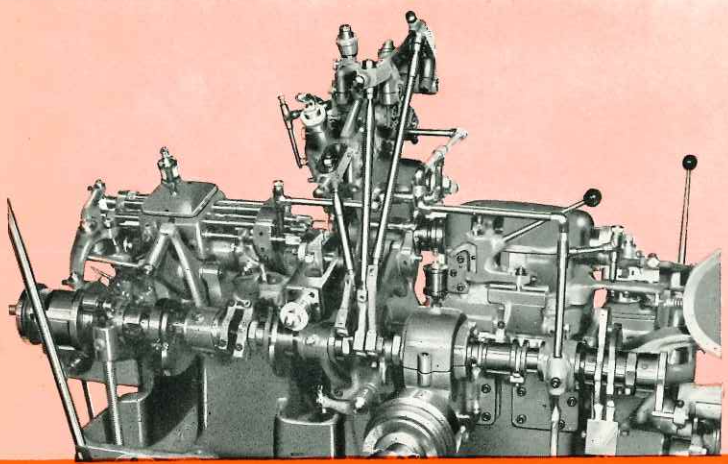




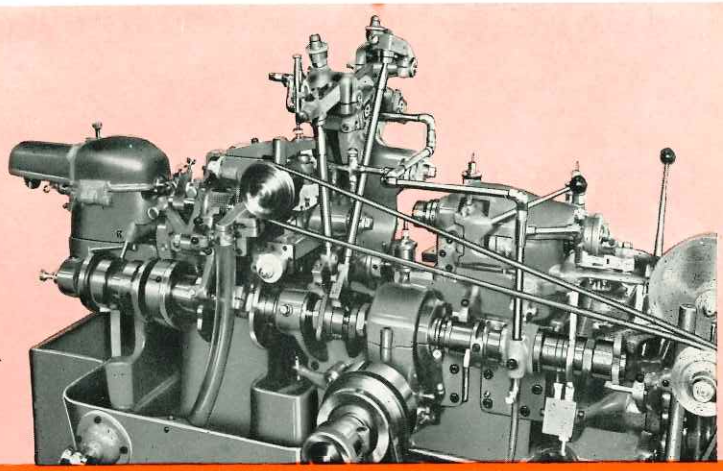
3 tail spindle attachment
(This unit is fitted to Types NS－P1653, NS－P1453, NS－P1153.)



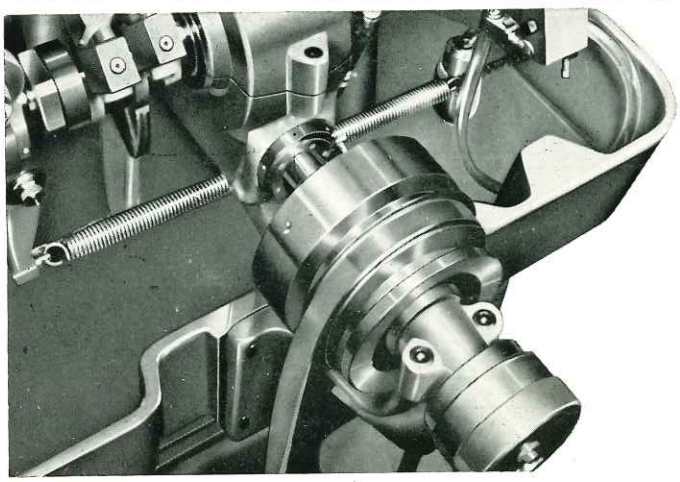
2 tail spindle attachment
(Type NS－P8420 only)



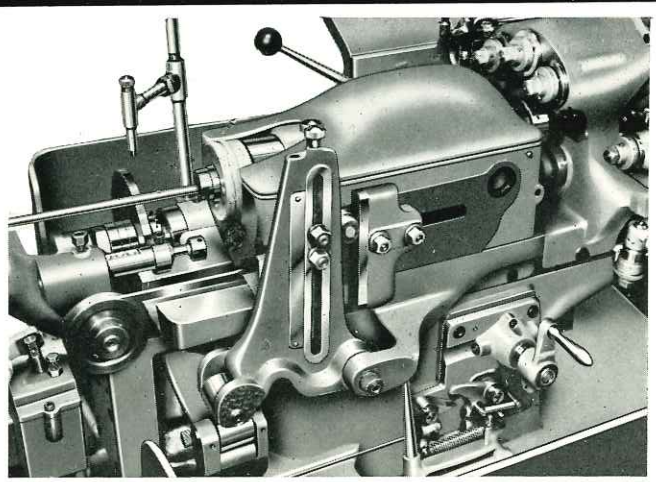
Rear cam shaft (Types NS－P1653, 1453, 1153)



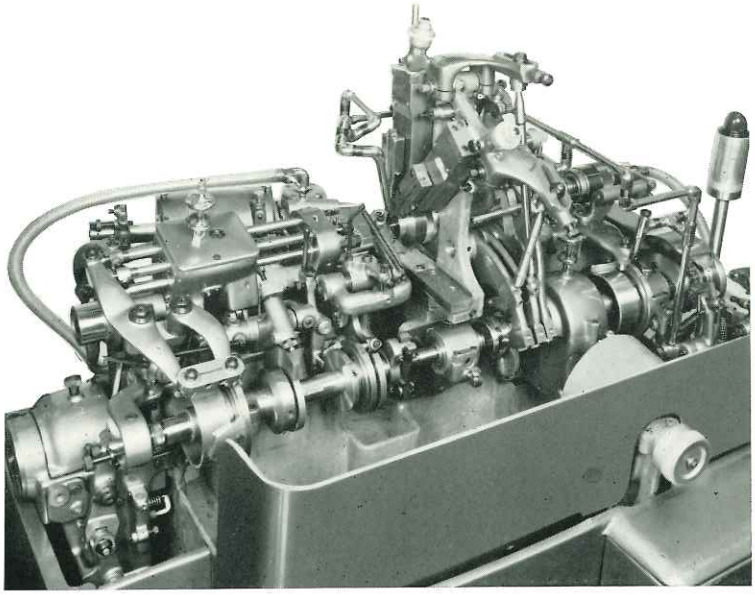
Rear cam shaft (Type NS－P8410)



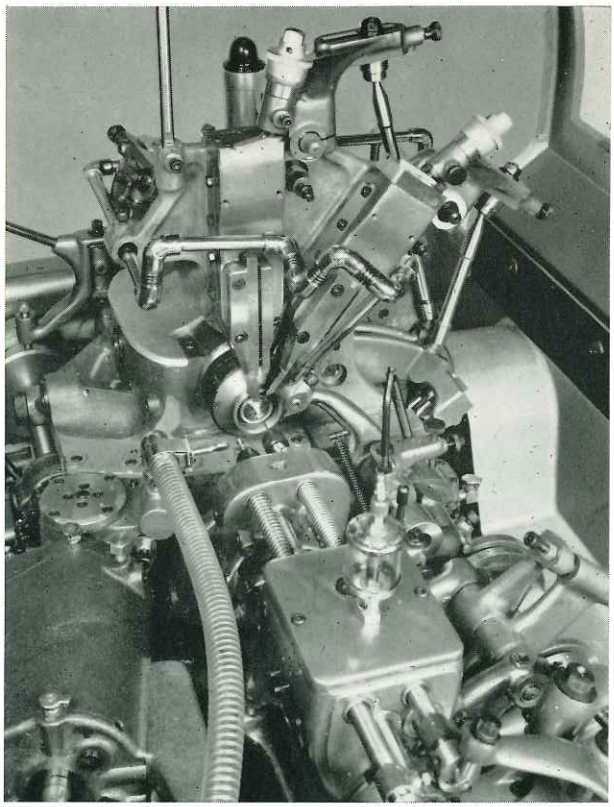
Spring strength adjustment
Safety device for overload
(This unit is fitted to all Types)



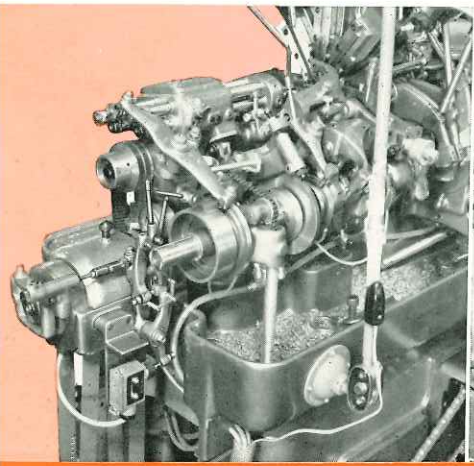
Headstock and proportional arm



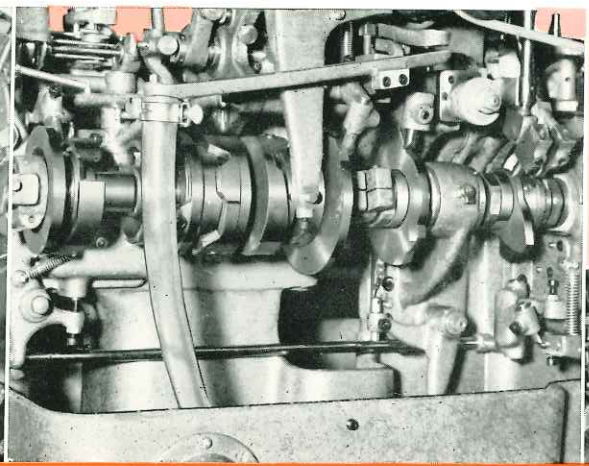
Rear cam shaft (Type NS－PS1022)



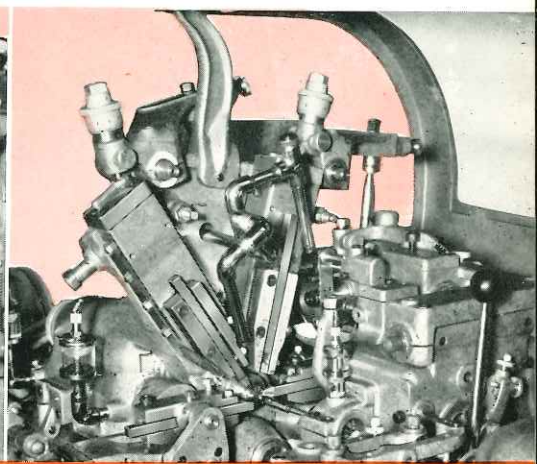
2 tail spindle attachment (Type NS－PS1022)



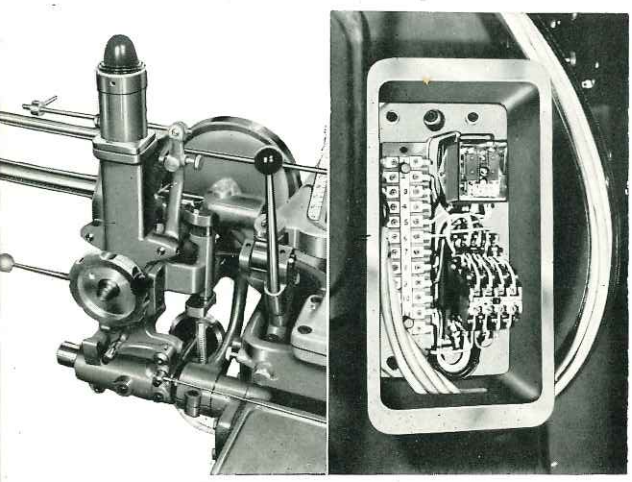
Safety device for tap breaking.
(Types NS－P1653, 1453, 1153)



Rear cam shaft (Type NS－PN8410)

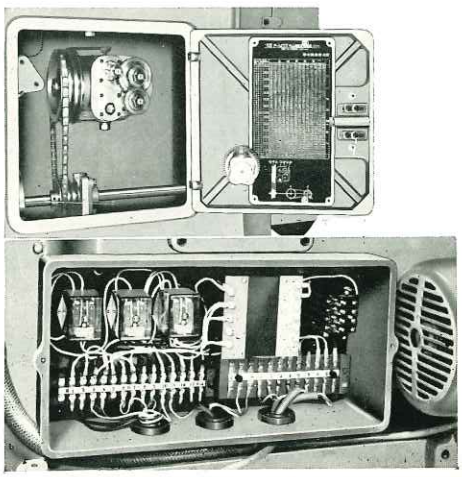


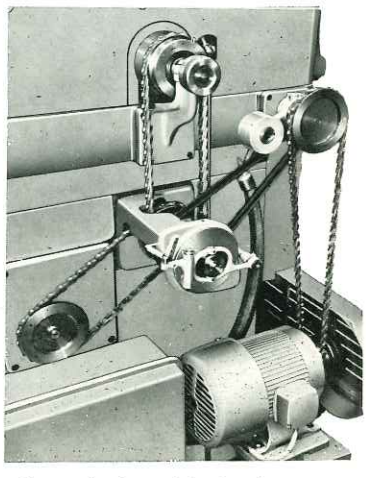
Equipped with slitting unit
(Type NS－PN8410)



Fixed position stopper
(This unit is fitted to all Types)

Gear box
Electrical Equipment
(This unit is fitted to
Types NS－P1653, 1453, 1153)





Cam shaft quick feeder
(This unit is fitted to
Types NS－P1653, 1453, 1153)

EXAMPLES CUT BY OUR MACHINE (PHOTO IN ACTUAL SIZE)

CS 30sec

CS 55sec

BR 30sec

FS 20sec

FS 50sec

HS 25sec

FS 40sec

BR 30sec

BR 30sec

BR 30sec

BR 20sec

BR 40sec

BR 25sec

HS 40sec

BR 25sec

FS 25sec

BR 20sec

CS 15sec

BR 15sec

BR 20sec

BR 25sec

FS 30sec

BR 40sec

FS 30sec

BR 15sec

FS 20sec

FS 40sec

BR 20sec

PB 20sec

NS 30sec

FS 20sec

BR 30sec

FS 40sec

BR 20sec

FS 20sec

BR 20sec

PB 20sec

FS 35sec

FS 15sec

BR 25sec

BR 15sec

FS 40sec

PB 15sec

BR 6sec

FS 20sec

BR 20sec

BR 25sec

BR 20sec

BR 25sec

BR 20sec

BR 10sec

BR 10sec

FS 20sec

FS 10sec

BR 15sec

BR 15sec

BR 20sec

BR 20sec

BR 15sec

BR 5sec

BR 5sec

BR 15sec

SS 40sec

BR 5sec

BR 20sec

BR 20sec

PB 15sec

BR 10sec

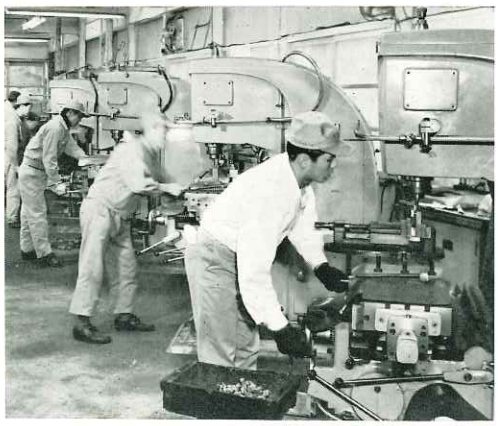
BR 20sec

NOTE

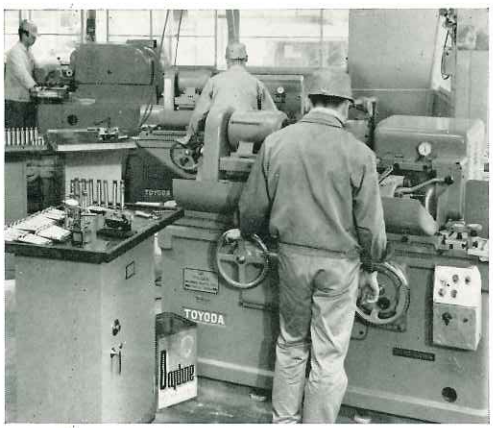
CS: Carbon steel
BR: Brass
FS: Free-cutting steel
HS: High-speed steel
PB: Phosphor bronze
NS: Nickel silver
SS: Stainless steel

INVITATION TO OUR FACTORIES

A partial scene of lathe workshop

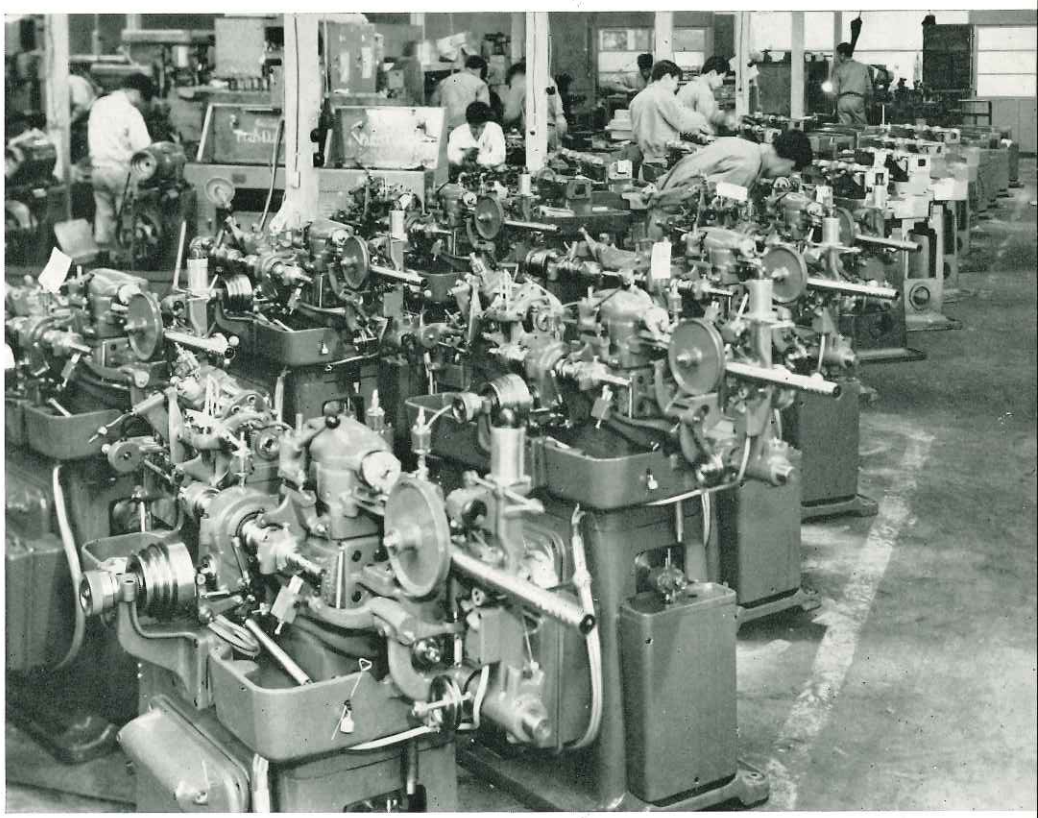


A partial scene of milling plant



Cylinder polishing workshop

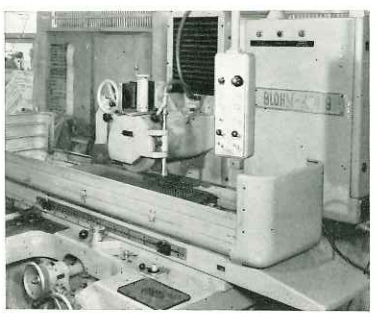
Nomura



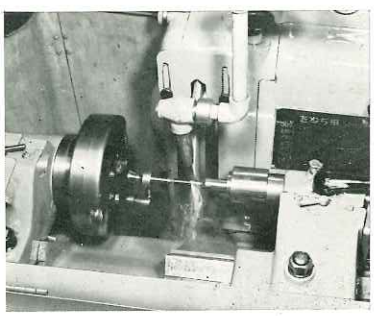
A partial scene of assembly plant

A partial scene of foundry

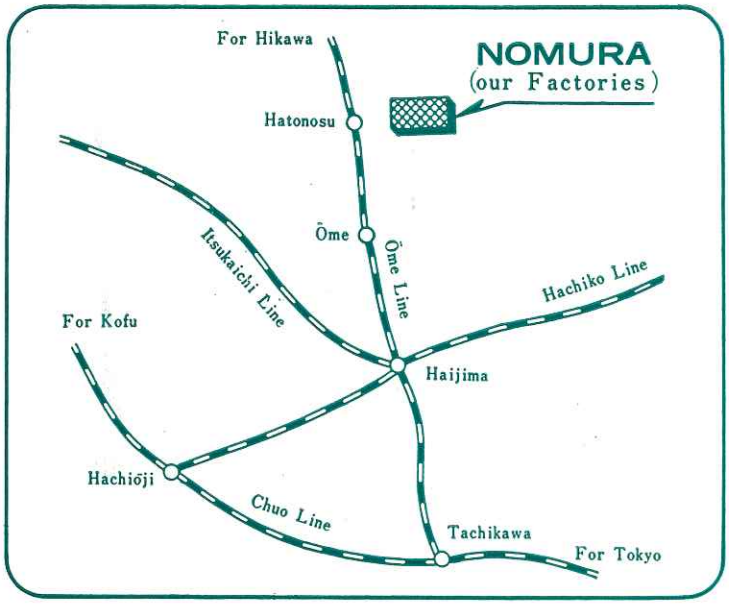
A partial scene of painting shop



A part of grinding macnine



A partial scene of screw grinding shop



Nomura

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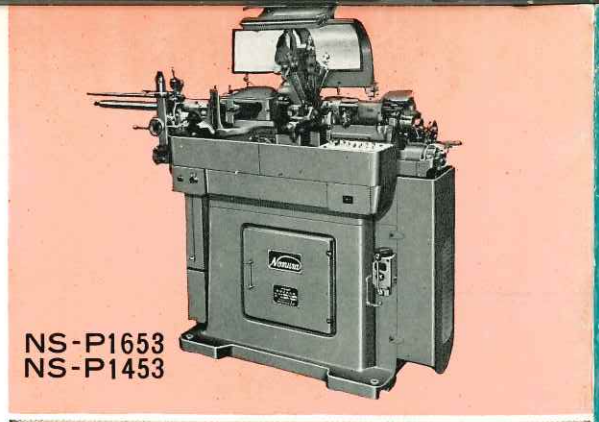
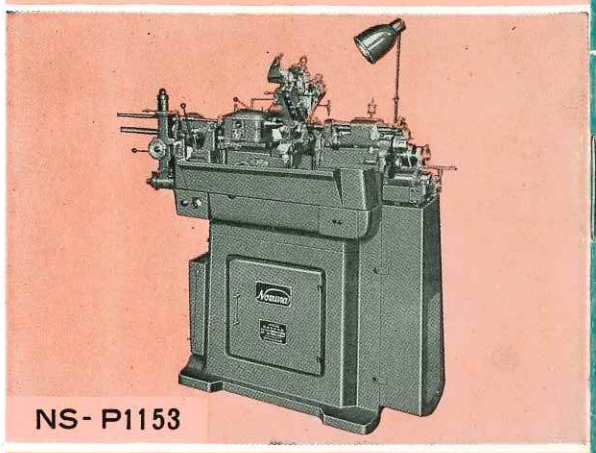
Cable address	"NOMURA SEIKI TACHIKAWA"

KANEMATSU NEW YORK, INC.
ONE WHITEHALL ST.
NEW YORK 4, N. Y.


NS-P1653
NS-P1453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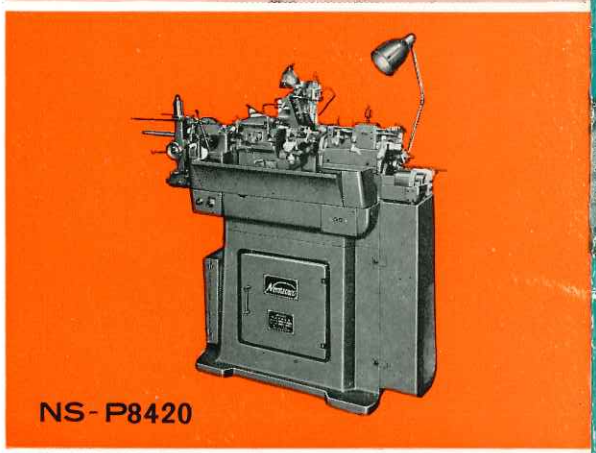
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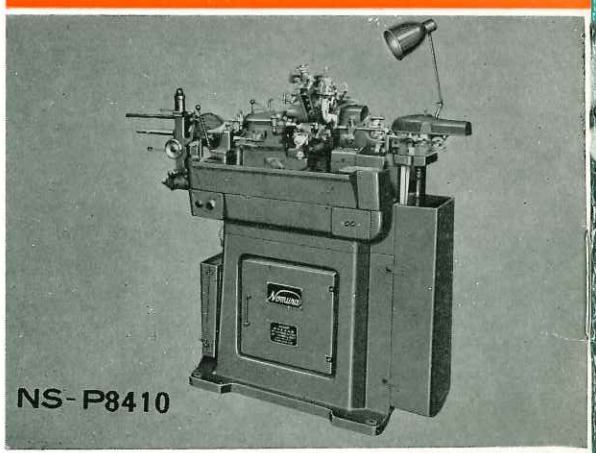
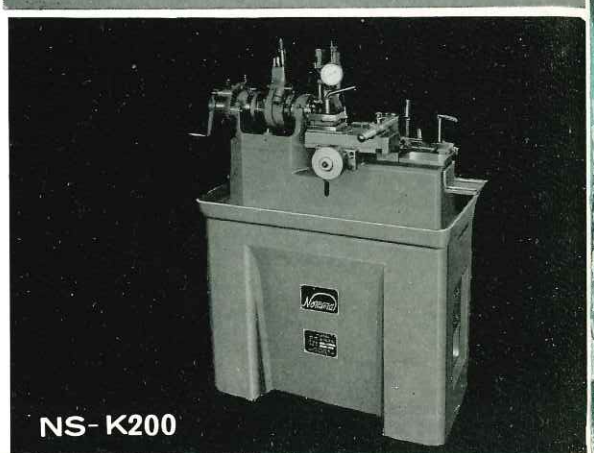

NS-P8410


NS-K200

—すずき美術カタログ社—